

REMARKS

The Office Action mailed on January 21, 2004, as well as the art cited therein, has been reviewed. Claims 1-31 are pending in this application.

Claim Objections

Claims 21-31 were objected to because of the following informalities:

Claim 23 has "using the electronic selector circuit to release control of the amplifier input to follow the differential output when the input signal to the phase detector is restored." It is not clear whether control is being released from the amplifier input so that it does not follow the differential output or if the electronic selector circuit is being used to follow the differential output.

Claim 23 has "to to" when there should only be "to".

Claim 23 has been amended to address these objections. Claim 29 has been amended to conform to amended claim 23. Accordingly, it is respectfully requested that this objection be withdrawn.

Rejections Under 35 U.S.C. § 112

Claims 15-22 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. The Office Action cited the recitation of "phased locked loop" in multiple places instead of "phase locked loop."

Claim 15 has been amended as suggested in the Office Action to address this rejection. Moreover, similar amendments have been made to claims 1, 8, and 23 to address the same issue with those claims. Accordingly, it is respectfully requested that this rejection be withdrawn.

Rejections Under 35 U.S.C. § 103

Claims 1, 2, 3, 7, 23, 30 and 31 were rejected under 35 USC § 103(a) as being unpatentable over Maddy (U.S. Patent No. 5,334,952) in view of Walley (U.S. Patent No. 6,606,364) and further in view of Momtaz (U.S. Patent No. 5,950,115).

The Office Action conceded that Maddy fails to teach “wherein the electronic selector circuit is operable to control the amplifier input to hold the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted” as is recited in claim 1 of the present application. The Office Action took the position that Momtaz teaches this. The Office Action concluded that it would have been obvious to one skilled in the art at the time of the invention to modify Maddy in view of the cited portion of Momtaz. The Office Action explained that one would have been motivated to do so for the reasoning taught in Momtaz – that when the link is interrupted, one loop is unable to compensate for the data frequency change exceeding the phase margin of the detector; thus, control has to be diverted to a second loop.

Applicant respectfully traverses these assertions. The portion of Momtaz cited in the Office Action fails to teach “wherein the electronic selector circuit is operable to control the amplifier input to hold the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted” as recited in claim 1 of the present application. The cited portion of Momtaz states for example that “if the incoming data link is temporarily interrupted, the phase only loop is unable to compensate and it must be disabled in its turn and control passed to the phase and frequency loop for reacquisition.” Momtaz, column 10, lines 47-51. Nowhere does the cited portion teach or suggest holding “the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted” as recited in claim 1 of the present application. Indeed, Momtaz indicates that “[t]his dual-loop system requires complex monitoring and control circuitry to evaluate the operational state of the PLL and in the event of a loss of velocity lock, *disables the PLL for a significant period of time in order to reacquire lock prior to proceeding with data detection.*” Momtaz, column 10, lines 52-56. Moreover, Momtaz goes on to teach away from this cited approach: “In accordance with practice of principles of the present invention, *such complex monitoring control circuitry is no longer necessary* and the operational state of a receiver PLL (28 of FIGS. 2 and 3) may be simply and efficiently evaluated against a known frequency reference.” Momtaz, column 10, lines 56-59.

Accordingly, it is respectfully requested that the rejection of claim 1 be withdrawn.

Claims 2, 3, and 7 ultimately depend from claim 1 and therefore, for at least those reasons set forth above with respect to claim 1, it is respectfully requested the rejection of these claims be withdrawn.

Claim 23 recites, in part, "using the electronic selector circuit to control the amplifier input to hold the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted". Therefore, for at least those reasons set forth above with respect to claim 1, it is respectfully requested that the rejection of claim 23 be withdrawn.

Claims 30 and 31 ultimately depend from claim 23 and therefore, for at least those reasons set forth above with respect to claim 23, it is respectfully requested the rejection of these claims be withdrawn.

Claims 8, 13 and 14 were rejected under 35 USC § 103(a) as being unpatentable over Maddy (U.S. Patent No. 5,334,952) in view of Walley (U.S. Patent No. 6,606,364) and further in view of Duckworth (U.S. Patent No. 5,686,903).

The Office Action conceded that Maddy fails to teach "wherein the electronic selector circuit de-couples the amplifier input from the differential output and holds the output frequency of the voltage controlled oscillator to a last received signal from the differential output when the input signal to the phase detector is interrupted" as recited in claim 8 of the present application. The Office Action took the position that Duckworth teaches holding the output frequency of the voltage controlled oscillator to a last received signal from the differential output when the input signal to the phase detector is interrupted (Duckworth, column 30, lines 33-41; column 32, lines 40-47). The Office Action concluded that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maddy with the teachings of Duckworth. The Office Action reasoned that one would have been motivated to do so since one would want to keep the input phase aligned with the feedback phase.

It is respectfully submitted that the cited portions of Duckworth fail to support the proposition that Duckworth teaches holding the output frequency of the voltage controlled oscillator to a last received signal from the differential output when the input signal to the phase detector is interrupted. Column 30, lines 33-41 of Duckworth are as follows:

wherein, if the activation signal ceases before training is complete, said controller interrupts the training sequence and signals the prompting circuit to prompt the operator to cause the remote transmitter to retransmit its activation signal, and when the activation signal is retransmitted and received; said controller resumes execution of the training sequence from a position in the training sequence at which the training sequence was interrupted.

Column 32, lines 40-47 of Duckworth are as follows:

wherein, if the activation signal ceases before training is complete, said controller interrupts the training sequence and signals the prompting circuit to prompt the operator to cause the remote transmitter to retransmit its activation signal, and when the activation signal is retransmitted and received, said controller resumes execution of the training sequence from a position in the training sequence at which the training sequence was interrupted.

The cited portions of Duckworth, on their face, do not relate to holding the output frequency of the voltage controlled oscillator to a last received signal from the differential output when the input signal to the phase detector is interrupted as asserted in the Office Action. Also, the Office Action contains no explanation or analysis as to why prompting “the operator to cause the remote transmitter to retransmit its activation signal” relates to holding the output frequency of the voltage controlled oscillator to a last received signal from the differential output when the input signal to the phase detector is interrupted. It is respectfully submitted that the cited portions of Duckworth fail to support the rejection as set forth in the Office Action.

Accordingly, it is respectfully requested that the rejection of claim 8 be withdrawn.

Claims 13 and 14 depend from claim 8 and therefore, for at least those reasons set forth above with respect to claim 8, it is respectfully requested the rejection of these claims be withdrawn.

Allowable Subject Matter

Claims 4-6, 9-12 and 24-29 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15-22 were indicated to be allowable if rewritten to overcome the rejection(s) under 35 USC § 112, second paragraph, set forth in the Office Action.

Serial No.: 09/432,022

Filing Date: October 29, 1999

Attorney Docket No. 100.116US01

Title: SYSTEMS AND METHODS FOR HOLDOVER CIRCUITS IN PHASE LOCKED LOOPS

CONCLUSION

Applicant respectfully submits that claims 1-31 are in condition for allowance and notification to that effect is earnestly requested. If necessary, please charge any additional fees or credit overpayments to Deposit Account No. 502432.

If the Examiner has any questions or concerns regarding this application, please contact the undersigned at (612) 332-4720.

Respectfully submitted,

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